

**UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS
EASTERN DIVISION**

CIVIL ACTION No. 04-11934-GAO

NOAH GREENBERG,
Plaintiff

v.

TOWN OF FALMOUTH and
GANNETT FLEMING, INC.,
Defendants

**PLAINTIFF'S REPLY TO DEFENDANT TOWN OF FALMOUTH'S
OPPOSITION TO PLAINTIFF'S MOTION FOR PRELIMINARY INJUNCTION**

EXHIBIT C

Designing and Constructing Municipal Facilities

LEGAL REQUIREMENTS
RECOMMENDED PRACTICES
SOURCES OF ASSISTANCE



OFFICE OF THE
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GENERAL

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INSPECTOR GENERAL

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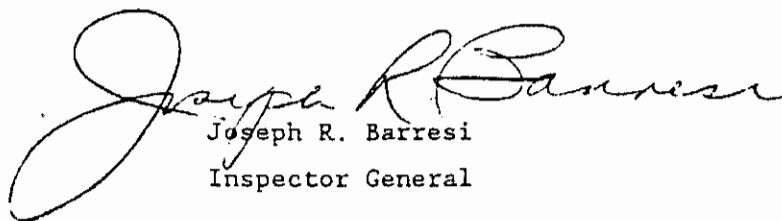
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October 4, 1989

The Office of the Inspector General was established by the Massachusetts General Court in 1980 to prevent and detect fraud, waste, and abuse in public construction and other public contracts. As Inspector General I have always put as much emphasis on prevention as on detection, and so I am pleased to make available this manual on municipal construction. It is my hope and belief that this manual will assist municipal officials in undertaking public construction projects in an efficient and effective manner.

I welcome your comments on this manual, and I invite you to contact my Office if either I or my staff can be of any further assistance.


Joseph R. Barresi
Inspector General

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CHAPTER ONE
PUBLIC CONSTRUCTION IN MASSACHUSETTS

Public construction is one of the essential functions of government. Cities and towns are responsible for many types of construction projects: schools, police and fire stations, municipal buildings, roads, utility systems, wastewater treatment plants, to name just a few. It is important that these facilities be properly designed and built, so as to serve the needs of the citizens and public employees who will use them. It is also important that these facilities be constructed efficiently and economically, so as to avoid unnecessary burdens on limited financial resources.

Here in Massachusetts, public construction is governed by a set of detailed requirements and procedures set forth in various State laws. Among these laws are the reforms enacted in 1980 as a result of the Ward Commission's landmark study of State and county building projects. The basic intent of these laws is perhaps best expressed in the opening section of the 1980 statute:

It is the purpose of this Act to provide the people of Massachusetts with a system of public construction which

- (1) results in buildings which are designed and constructed according to the highest professional and technical standards at a fair cost, in a reasonable and controlled period of time, and which serve the needs of their users;
- (2) operates under coordinated policies, in a timely, efficient, and professional manner, and is staffed by competent and trained professionals;
- (3) properly maintains and makes maximum use of the existing resources of the Commonwealth;
- (4) eliminates excessive costs, unwarranted delays and the use of outdated methods and materials;
- (5) requires that all participants be held accountable for their decisions and actions; and

(6) reduces opportunities for corruption, favoritism, and political influence in the award and administration of public contracts. [St. 1980, c.579].

Purpose of This Manual

The State's public construction requirements are complex and can be difficult to understand. This manual has been designed for use by local officials who are required to manage or oversee public construction projects and who may need a ready reference on the legal and procedural requirements of the bidding laws in Massachusetts. The manual provides an overview of the design and construction process in lay terms. It identifies those steps in the process which are governed by specific statutory requirements, and for those steps which are not governed by statute, it offers guidance and suggestions.

Reading this manual will not make you an expert in public construction. Any major public construction project should be administered by knowledgeable and experienced personnel. If your city or town does not have such people on the municipal payroll, hire them on a temporary basis. Proper supervision is perhaps the most important factor in having a construction project built properly, on time, and within budget. Skimping on adequate supervision to save money is a shortsighted and often costly decision.

What's Included and What's Not

This manual focuses on municipal projects, which in general include any construction project undertaken by any city or town; by any agency, board, or commission within a city or town; or by a regional school district. The generic term "awarding authority" is used throughout the manual to refer to the entity which has legal authority to undertake a project.

In no case may the designer's fee be determined as a percentage of the construction cost. [G.L. c.7 §38G(c)]. This practice is illegal and invites projects which are larger and more expensive than you really need.

Step 8: Negotiate and Award the Contract

Each municipality should request its legal counsel to develop a standard contract for design services. Model contracts put out by the State Division of Capital Planning and Operations (DCPO) and by the American Institute of Architects can be consulted for guidance, but neither of these two documents completely fits the municipal situation. Once a standard contract is developed, it can then be used over and over again with only minor modifications needed for each project. Here are some particular points to consider in developing a contract document:

Scope. The contract must clearly define the scope of services to be performed, including a list of all deliverables and other work products to be produced by the designer. This scope of work must substantially conform to the scope published in the initial advertisement. It is not permissible to advertise for designers to do a small renovation project and then, during the negotiation process, change the project into the design of a major new building. If a significant change in the project's scope is required, the designer selection process must be started anew.

Key personnel. The qualifications of the designer's proposed project team, particularly the proposed project manager and other senior staff, should be a key factor in the selection process. To prevent the designer from substituting less experienced personnel after the contract is awarded, the contract should specifically list the names and time commitments (for example, if certain staff are expected to work full-time on the project) of the key personnel included in the designer's proposal.

Payment terms. Most designers, particularly on larger projects, will expect to receive periodic payments. It is preferable to link these payments to progress (such as the completion of designated milestones) rather than simply paying a certain amount each month. The contract should also specify who will bear the cost of redesigns if the plans are unsatisfactory or if the construction bids exceed the estimated cost or the available appropriation. In addition, the contract must prohibit the designer from receiving any extra payments for additional work which should have reasonably been anticipated by the designer. [G.L. c.7, §38H(j)].

Errors and omission insurance. Liability insurance, which protects the awarding authority in the event of errors or negligence on the part of the designer, is required on all design work other than planning studies. [G.L. c.7, §38H(f)]. The minimum amount of required insurance is 10% of the estimated construction cost or \$1 million, whichever is less. The awarding authority may choose to increase the requirement. Generally, the insurance is obtained by the designer, although on some larger projects, some awarding authorities may find it less expensive to obtain the insurance on their own. Naturally, a decision on who will pay the insurance premiums should be made before a final fee is negotiated. If you require that the designer obtain all or a portion of the insurance, the designer must provide you with a certificate of insurance coverage prior to award of the contract. You may also require that a consultant employed by the designer obtain insurance, and, if you do, the consultant must provide a certificate of coverage prior to the consultant's employment.

Other statutory conditions. State law contains several certifications and requirements relating to non-collusion in the submission of proposals and to financial reports which the designer must file. [G.L. c.7, §38H(e)]. These provisions must be included in the design contract. Note also that any person contracting with a municipality

must certify in writing that he or she has complied with State tax laws. [G.L. c.62C, §49A].

Ownership of documents. A provision giving ownership of the design documents to the awarding authority can be useful, particularly in cases where the contract needs to be terminated.

Finally, the name of the designer awarded the contract must be published in the Central Register; use the "Contract Award" form in Appendix C for this purpose.

Developing Detailed Designer Selection Procedures

The State Designer Selection Board has issued guidelines for municipal designer selection (see Appendix D). These guidelines, which are based on the selection process used for State projects, have been used by most communities as the basis for their own designer selection procedures. Municipalities may deviate in minor respects from these guidelines, provided that the local process adheres to the purposes and intent of the designer selection statute. [G.L. c.7, §§38A½ - 38N]. Exactly how much deviation is permitted at the local level is a matter subject to judicial interpretation. If you do wish to deviate from the guidelines, we recommend that you consult with your municipal attorney.

In tailoring the DSB guidelines for local use, particular attention should be given to the following areas:

Applicability. Specify whether the procedures will be used for only those building projects covered by the designer selection statute, or whether they will also be used for other types of municipal construction. Specify whether all municipal agencies and boards are subject to the procedures, or whether some agencies (for example, a school committee) will be subject to other procedures.

CHAPTER THREE THE DESIGN PHASE

As soon as someone has been selected to perform design services and a contract has been signed, work can begin.

Supervision of the Design Process

The appointment of a qualified, professional designer does not end the involvement of the awarding authority. It is critical to the success of a project to appoint a project manager or project coordinator to monitor and oversee the project beginning with the design process. The project manager's major duties with respect to the design work might include the following:

- negotiating the designer's contract and any subsequent amendments;
- monitoring the designer's progress, and working with the designer to resolve any problems hindering the project's completion;
- ensuring that users and others affected by the project are properly consulted;
- making decisions on design options presented by the designer, or, where decisions need to be made by others, seeing that the decisions are made and communicated to the designer; and
- reviewing and approving invoices for payment submitted by the designer.

Where a project is under the supervision of a committee or board, such as a town building committee, it is still important to designate one person to coordinate all communications with the designer. It is obviously undesirable to have several different people giving instructions to the designer.

In addition, the project manager should attend to the many other tasks which are required to complete a project but which may not be within the scope of the designer's responsibilities. These might include site, acquisition and relocation efforts; working with legal counsel to draft the construction contract and related documents; analyzing insurance options for the construction phase; ensuring that project financing is available; and assisting the project's users in preparing for a smooth transition.

The Study

The design work on a construction project typically begins with a study phase. The study phase addresses a series of planning issues and questions, among which are the following:

PROGRAM: The program defines the specific functions and requirements which the proposed project must meet. For a small project, it can be very brief, but for major projects it will be much more detailed. How many people will use a facility, what functions will be carried on, how much space is needed for those functions, what special equipment or construction is needed -- these are the types of questions which a program must answer.

ALTERNATIVES: What are the available alternatives for meeting the functional requirements and what are their relative costs and benefits? This might include, for example, an analysis of new construction versus renovation or a review of different sites.

SURVEYS AND FIELD TESTS: Some tests may be conducted during the study phase to obtain more reliable data on the cost and feasibility of various sites or design alternatives.

ENVIRONMENTAL IMPACTS: What are the expected impacts on the environment, and how can negative impacts be mitigated? For some

projects, an environmental impact study will be required under State or Federal statutes.

COSTS AND FINANCING. How much will the project cost to build? How much will it cost to operate? Where will the money come from?

The content and focus of a specific study will, of course, depend on the project under consideration. In addition, these issues and questions may be addressed in a single study or in a series of progressively more detailed studies. A good source of more detailed information on the study process is a booklet prepared by DCPO entitled Guidelines for Studies of Building Projects Prepared for State Agencies, Building Authorities and Counties.

Is A Program or Study Necessary?

As a practical matter, yes. There is no legal requirement telling you precisely how detailed the study or program must be, or who must approve it, but keep this in mind: when you advertise for the designer for the final design, you are going to need to know enough about the project to write a scope of services for the final design work and to set a lump-sum fee. If you haven't figured out the approximate size of the new building, or settled on the most cost-effective alternative (a new wing on the library, or a new building) -- in short, if you haven't done a program and study -- it will be virtually impossible on a project of any significant size to select an architect to work on schematics and final design in compliance with the law.

Who Should Conduct the Study?

Studies are typically conducted by municipal officials, by volunteer citizen committees, by professional consultants, or by some combination of the above. Two considerations to keep in mind:

Make sure the users are involved. The needs and requirements of those who will be using the proposed facility should be clearly documented during the study. Now is the time to discover that the Fire Department plans to buy a new truck five feet longer than the current trucks, not after the construction plans for a building that is five feet too short have gone out for bid.

Make sure you have the necessary expertise. Many aspects of a study, such as the development of reliable construction cost estimates, require professional expertise. The use of an outside consultant is strongly recommended when the local officials or advisory groups do not possess that expertise.

There is a temptation to save money by not hiring an outside consultant, even when additional expertise is clearly needed. Such an approach is ill-advised. The cost of a proper study is very small in comparison to the total cost of a construction project. In the long run, the problems created by inadequate planning can cost far more than the study.

Whenever an outside consultant is to be hired, the designer selection process described in chapter 2 must be followed.

How Long Should the Study Take?

As long as it takes. There should be no arbitrary time limit on the planning process. A project should never proceed beyond the planning stage until there is agreement on what will be included, how much it will cost, and how it will be financed. The emphasis should be on ensuring that the project is well planned, not on how quickly the planning can be gotten out of the way.

In particular, the actual design phase should not begin until the awarding authority has explicitly approved a program for the project.

This program statement should be in writing, and it should reflect the decisions made by the awarding authority during the study phase.

Can We Use the Same Designer for the Study and for the Subsequent Design?

Usually not. A consultant hired during a study phase is prohibited by statute from continuing into the final design. [G.L. c.7, §38H]. Thus, a contract which calls for the architect to provide analyses of the awarding authority's needs, look at financial feasibility, study prospective sites (all elements of the study phase) and then go on to design the facility would violate the law.

The intent of this statute is to ensure that the study results will be impartial and objective and to prevent a consultant from inflating the scope of a project so that he or she can benefit from higher design fees in subsequent phases. There are two exceptions to this rule:

Small repairs. The restriction does not apply to the repair of existing buildings and equipment, where the total design fee (study and final design) does not exceed \$25,000. [G.L. c.7, §38H(d)].

Independent review. The restriction does not apply if the awarding authority has the study results reviewed by a knowledgeable and competent individual or firm with experience designing similar projects. The reviewer must be independent, with no connection with either the study consultant or the awarding authority and with no vested interest in the study results. The reviewer must certify that the study was reasonable and adequate. [G.L. c.7, §38H(i)]. The review of a State agency involved in overseeing or approving a project may satisfy this requirement, if the agency has staff with the professional qualifications needed to evaluate the study and if the State agency review includes all the major findings of the study. As of 1989, the School Building Assistance Bureau and the Executive Office of Energy Resources were not equipped to do an independent review within the meaning of the designer selection law. Check

beforehand with the Department of Labor and Industries if you are considering reliance on an independent review by any other State agency.

Generally speaking, reliance on an independent review to certify the reasonableness of a study is only appropriate and cost-effective on smaller projects. The cost of an independent review should first be estimated by consulting with knowledgeable staff or soliciting estimates from at least three potential reviewers. If the estimated cost of the independent review itself is more than a few thousand dollars, you may well be better off not using the feasibility designer for the subsequent design work, and instead following the designer selection procedures to select another designer for the subsequent work.

If you want to consider using the independent review option, you must state in the initial advertisement for design services that the feasibility designer may, subject to an independent review, go on to perform the final design. You must also set separate fees for the feasibility phase and the final design phase.

How should we choose an independent reviewer? It is not necessary to follow the designer selection procedures to select an independent reviewer, but it is permissible to do so. The cost of an independent review should be relatively small, well under the \$10,000 threshold recommended by the Inspector General for formal competition for selecting consultants under the proposed Uniform Procurement Code. A prudent procedure is, first, to define the scope of the reviewer's services and the reviewer's qualifications, then to solicit proposals from at least three qualified reviewers, either by telephone or in writing. Alternatively, you may advertise for proposals. You should choose the most advantageous proposal, taking into consideration both qualifications and price.

The Design

During the design phase, the functional requirements established during the study phase are translated into an acceptable architectural and engineering design. Typical tasks included in the design phase include the following:

- Surveys and field tests to provide additional information about conditions at the site. The extent of this item will depend in part on the amount of field work done during the study phase.
- Additional consultations with the project's users, with abutters, and with other affected individuals and groups.
- Preparation of sketches and schematic drawings, including site plans, floor plans, and facade drawings, which present a clear idea of what the proposed project will look like.
- Analysis of major building components, including foundations, structures, electrical systems, and heating, ventilating, and air conditioning (HVAC) systems.
- Preparation of final plans, specifications, and other bid documents. The plans are the construction drawings, and the specifications are the written materials which describe such things as the construction techniques to be used and the quality of materials to be furnished.
- Updated project cost estimates, based on the final plans and specifications.

On major projects, the preparation of the final plans and specifications requires a significant amount of time and effort. As a result, the design phase on major projects is often divided into three sub-phases: schematic design; design development; and preparation of final plans and specifications. The schematic phase provides a time for the designer to develop, and for the awarding authority to review and approve, the various architectural and engineering concepts. Once the major decisions have been made, the designer can then proceed into the detailed design development and the preparation of the final plans and specifications.

Energy System Life-Cycle Cost Estimates

Projects which will have significant energy consumption can benefit, greatly from life-cycle cost estimates prepared during the preliminary design. Life-cycle cost estimates allow different alternatives (such as the type of heating system to be used) to be compared not just on the basis of their initial capital cost, but on the basis of their total cost -- including energy consumption -- over the life of the project.

Energy system life-cycle cost estimates are required by State law for the following categories of projects:

- new buildings, where the estimated construction cost is greater than \$100,000
- additions to existing buildings, where the increase in gross floor space is at least 10% and the estimated construction cost is greater than \$100,000
- modification or replacement of an energy system in an existing building, where the estimated cost is greater than \$25,000. [G.L. c.149, §44M].

For these categories of projects, summaries of the life-cycle cost estimates must be filed with the State Board of Building Regulations and Standards and with the State Secretary of Energy Resources prior to the preparation of plans and specifications. The awarding authority may not advertise for construction work, nor may a building permit be issued, until the Secretary of Energy Resources has approved the estimates.

Where energy costs will be a significant factor in a project, the development of life-cycle cost estimates may very well be needed during the study phase to assist in the evaluation of alternatives.

Avoiding Restrictive Specifications

In preparing the specifications for equipment and materials to be used in a construction project, the designer must seek to avoid "proprietary" specifications which allow only one brand to be used. State law requires that, in general, specifications be written so that they can be met by at least three manufacturers. [G.L. c.30, §39M]. If it is necessary to be more restrictive, the reasons must be documented.

Bidding documents which specify specific brands must also contain an "or equal" clause. This allows the contractor to supply an item from another supplier as long as its performance (in terms of quality, durability, appearance, strength, design, and function) is equal to the specified brands.

How Do I Bid a Job If I Don't Know the Exact Quantities of Everything?

Use estimated quantities. For example, if you're bidding the repair of potholes in town streets (a c.30 contract), estimate the number of cubic yards of bituminous concrete you will need, and require bidders to submit both a unit price and a total price based on your estimate. It is not permissible to solicit only unit prices and base the contract on the lowest unit price, for two reasons. First, the prices offered by bidders may depend on the quantity involved, so all bidders should have the same estimate on which to base their bid. Second, where there are several items to be included in the bid, the bottom-line bid price will depend on the awarding authority's estimated quantity for unit price items. The contract must be awarded to the bidder with the lowest total price, based on the estimated quantity or quantities. Then, when the work is performed, actual payments will be based on the actual quantity and the unit price in the bid.

Where the cost of unit price items is significant, it can be useful in some situations to include in the contract a requirement that the unit price be renegotiated if the actual quantity exceeds the estimated

quantity by a specified amount. Such a provision recognizes that a contractor's unit price cost is often lower for larger quantities and would allow the awarding authority to benefit from the savings.

Additional Requirements on Certain Building Projects

If the project is going to be bid under the provisions of G.L. c.149, §44A, which generally applies to construction projects whose estimated cost exceeds \$25,000 and which includes work on a building,[†] certain additional legal requirements must be kept in mind during the preparation of the plans and specifications.

Allowances. Allowances are sometimes used in construction bidding to cover items for which the design has not been completed. Bidders are told to include an arbitrary amount for the item, which will be adjusted later through negotiation with the successful bidder. The use of allowances in c.149 contracts is strictly prohibited. If design work is not complete on a particular item, it must be deleted from the scope of work and bid under a separate contract at a later date. [G.L. c.149, §44G].

Alternates. Alternates are options which the awarding authority includes in a bid package for which the bidders must submit separate prices. The awarding authority reserves the right to select or reject the optional work, based on the prices received. For c.149 contracts, alternates can be included in the bid package only if they are ranked numerically in order of priority. Then, when evaluating the bids, a specific alternate can be selected only if all of the higher-ranking alternates have also been selected. [G.L. c.149, §44G].

[†] See chapter 4 for a more detailed discussion on determining whether a project must be bid under c.149.

Contractor certification category. During the c.149 bidding process, the awarding authority will need to specify the certification category for the general contractor. See chapter 4 for a list of the standard certification categories and a discussion of how they are used. If your project will require the use of a certification category which is not on the standard list, you will need approval from DCPO. This should be discussed with DCPO as early in the design process as possible.

Filed subbids. The filed subbid process, which is described in detail in the next chapter, applies to the following categories of work if performed under c.149 contracts:

Roofing and flashing	Metal windows
Waterproofing, damp-proofing and caulking	Misc. and ornamental iron
Acoustical tile	Lathing and plastering
Tile	Marble
Resilient floors	Terrazzo
Painting	Glass and glazing
Heating, ventilating and air conditioning (HVAC)	Plumbing
Masonry work	Electrical work
	Elevators

If the estimated value of work in any of these categories is greater than \$10,000, the work must be bid separately under the filed subbid procedures.[†] To accommodate the filed subbid process, the designer must prepare separate plans and specifications for each filed subbid category. [G.L. c.149, §44F(1)].

Exception: where one of the filed subbid categories constitutes the predominant work on a project (for instance, a project to repair the roofs on town buildings), the work may be included as part of the

[†] The awarding authority may combine marble, tile, and terrazzo into a single subbid category, provided that the subbidders are required to show on their bid forms the amounts for each category separately as well as the total.

main contract and need not be segregated into a separate contract for filed subbidding. [G.L. c.149, §44F(3)].

Minimum scale. Plans prepared for c.149 contracts must have a minimum scale of 1/8 in. = 1 ft. This requirement does not apply to site plans. [G.L. c.149, §44B(1)].